

CLAIMS

1 1. An optical system comprising:  
 2 an optical device including a first para-electric holographic medium, said first  
 3 holographic medium storing a first hologram, said first hologram having a first active  
 4 mode, said first hologram exhibiting said first active mode when a first electric field is  
 5 applied to said first holographic medium, in said first active mode said first hologram  
 6 being adapted to direct light incident upon said first para-electric holographic medium  
 7 to a first location.

1 2. The optical system of claim 1, wherein said optical device is adapted to  
 2 selectively direct light between said first location and a second location such that said  
 3 optical device operates as a switch.

1 3. The optical system of claim 1, wherein in said first active mode said first  
 2 hologram is adapted to focus light incident upon said first para-electric holographic  
 3 medium to said first location.

1 4. The optical system of claim 1, wherein said first location is arranged along an  
 2 optical axis of said optical device; and  
 3 wherein said optical device includes a second hologram, said second hologram  
 4 having a second active mode, said second hologram exhibiting said second active  
 5 mode in response to a second electric field, in said second active mode said second  
 6 hologram being adapted to focus light incident upon said optical device to a second  
 7 location, said second location being arranged along the optical axis of said optical  
 8 device.

1000135102401

1 5. The optical system of claim 1, further comprising:  
 2 a first electrode arranged proximate to said first para-electric holographic  
 3 medium;  
 4 a second electrode arranged proximate to said first para-electric holographic  
 5 medium; and  
 6 a control system electrically communicating with said first electrode and said  
 7 second electrode, said control system being adapted to apply an electric potential  
 8 across said first electrode and said second electrode to generate said first electric field.

1 6. The optical system of claim 1, further comprising:  
 2 means for applying said first electric field across said first para-electric  
 3 holographic medium.

1 7. The optical system of claim 1, wherein said optical device includes a second  
 2 hologram, said second hologram having a second active mode, said second hologram  
 3 exhibiting said second active mode in response to a second electric field, in said  
 4 second active mode said second hologram being adapted to direct light incident upon  
 5 said optical device to a second location.

1 8. The optical system of claim 7, wherein said optical device includes a second  
 2 para-electric holographic medium, said second holographic medium storing said  
 3 second hologram.

1 9. The optical system of claim 7, wherein said first para-electric holographic  
2 medium stores said second hologram.

1 10. The optical system of claim 7, further comprising:  
2 a first output transmission medium optically communicating with said optical  
3 device, said first output transmission medium being adapted to receive at least some  
4 of the light propagated to said first location; and  
5 a second output transmission medium optically communicating with said  
6 optical device, said second output transmission medium being adapted to receive at  
7 least some of the light propagated to said second location.

1 11. The optical system of claim 10, further comprising:  
2 a first input transmission medium optically communicating with said optical  
3 device, said first input transmission medium being adapted to propagate light to said  
4 optical device.

Sub  
A2  
10001315-102401  
FO4201-STE10001

1 12. A method for selectively altering the propagation of light comprising:  
 2 providing a first para-electric holographic medium, the first para-electric  
 3 holographic medium including a first hologram, the first hologram having a first  
 4 active mode, in the first active mode the first hologram being adapted to direct light to  
 5 a first location;  
 6 propagating light to the first para-electric holographic medium;  
 7 directing light to a second location with the first para-electric holographic  
 8 medium;  
 9 setting the first hologram to the first active mode; and  
 10 directing light to the first location with the first hologram in the first active  
 11 mode, the first location being different than the second location.

1 13. The method of claim 12, wherein the first para-electric holographic medium  
 2 includes a second hologram, the second hologram having a second active mode, in the  
 3 second active mode the second hologram being adapted to direct light to the second  
 4 location; and  
 5 wherein directing light to a second location includes:  
 6 setting the second hologram to the second active mode; and  
 7 directing light to the second location with the second hologram in the  
 8 second active mode.

1 14. The method of claim 12, wherein directing light to the first location includes  
 2 focusing light to the first location.

1 15. The method of claim 12, wherein the first and second locations are arranged  
2 along an optical axis of the first para-electric holographic medium.

1 16. The method of claim 15, wherein directing light to the first location comprises:  
2 focusing light to the first location; and  
3 wherein directing light to the second location comprises:  
4 focusing light to the second location.

1 17. The method of claim 15, wherein setting the first hologram to the first active  
2 mode comprises:  
3 applying a first electric field across the first para-electric holographic medium.

1 18. The method of claim 15, further comprising:  
2 providing a second para-electric holographic medium, the second para-electric  
3 holographic medium including a second hologram, the second hologram having a  
4 second active mode, in the second active mode the second hologram being adapted to  
5 direct light to a third location;  
6 propagating light to the second para-electric holographic medium;  
7 directing light to the first location with the second para-electric holographic  
8 medium;  
9 setting the second hologram to the second active mode; and  
10 directing light to the third location with the second hologram in the first active  
11 mode, the third location being different than the second location.

1 19. The method of claim 18, wherein setting the second hologram to the second  
2 active mode comprises:

3 setting the first hologram to the first active mode.

1 20. The method of claim 12, wherein the first para-electric holographic medium  
2 optically communicates with a first output transmission medium and a second output  
3 transmission medium; and

4 further comprising:

5 receiving at least some of the light propagated to the first location with the first  
6 output transmission medium; and

7 receiving at least some of the light propagated to the second location with the  
8 second output transmission medium.